

### REMARKS

This amendment is being filed along with a Request for Continued Examination (RCE) application in response to the final Office Action having a mailing date of April 2, 2007. Claims 1, 12, 18-19, and 21 are amended as shown. No new matter has been added. With this amendment, claims 1-27 are pending in the application.

#### I. Discussion of the claims and cited references

The final Office Action rejected claims 1-12 and 16-27 under 35 U.S.C. § 103(a) as being unpatentable over Kenny (U.S. Patent Application Publication No. 2004/0036595) in view of Schuermann (EP Application Publication No. 0689161). Claims 13-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kenny in view of Schuermann and further in view of Turner (EP Application Publication No. 0899677). For the reasons set forth below, these rejections are respectfully traversed herein.

#### A. Discussion of new limitations in independent claim 1

Independent claim 1 as presently amended recites, *inter alia*, that “the corresponding frequencies  $f_j$  and  $f_{j+1}$  are different frequencies in a same frequency band.” Support for these limitations can be found, for instance, on page 6, line 29 to page 7, line 9 and elsewhere in the present application, wherein an example embodiment changes frequencies within the 2.4 GHz frequency band. Various embodiments can change frequencies within other frequency bands. Examples of common frequency bands in the RFID field include: 125 - 134 kHz; 13.56 MHz; UHF (400 – 930 MHz); 2.45 GHz; and 5.8 GHz.

It is respectfully submitted that none of the references, whether singly or in combination, disclose, teach, or suggest the features recited in claim 1 that require “different frequencies in a same frequency band.”

For instance, the final Office Action has cited Kenny’s paragraph [0018] as disclosing sending power at a “first frequency in the low frequency range” and paragraph [0033] as disclosing transmitting a second signal at a “second frequency in the high frequency range.” However, Kenny teaches that his low frequency (LF) carrier signal and his high frequency (HF)

carrier signal belong to two different frequency bands. Specifically, Kenny's paragraph [0021] discloses that "a LF carrier signal of about 125 kHz is advantageously utilized." In contrast, Kenny's paragraph [0033] discloses that the HF carrier signal is preferably "greater than about 100 MHz" and "less than about 2500 MHz, and preferably, less than about 1000 MHz."

Thus, Kenny teaches switching between two different frequency bands. The fact that Kenny's LF and HF carrier signals belong to different frequency bands is due to the nature of his invention. Specifically according to paragraphs [0023] – [0025], Kenny's tags are associated with zones, such as "zone 1" and "zone 2." Tags within the range of the LF carrier signal are in zone 1. For tags that are in zone 2 or otherwise outside of zone 1 (and thus outside the range of the LF carrier signal), the HF carrier signal is used because "a longer range is obtained from higher frequency signals," as Kenny explains in paragraph [0033].

Kenny thus provides the HF carrier signal, in a different frequency band than the LF carrier signal, in order to extend range. There is accordingly no disclosure, teaching, or suggestion in Kenny to provide "different frequencies in a same frequency band" as recited in amended claim 1. If Kenny were to *hypothetically* provide his LF and HF carrier frequencies within the same frequency band, it is respectfully submitted that he would not achieve his objective. That is, he would not be able to sufficiently extend the range for communicating with tags (e.g., Kenny would only be able to communicate with tags within a single zone, such as zone 1), since the resulting frequencies would be so close together that they would provide inconsequential range differences. This result is contrary to the intent, objectives, and purposes of Kenny's original invention. Hence, claim 1 is allowable over Kenny.

It is respectfully submitted that claim 1 is also allowable over Schuermann or Turner, whether singly or in combination with Kenny. For example, Turner is completely silent with regards to different frequencies in a same frequency band.

With regards to Schuermann, Schuermann provides a reader 12 having a reader antenna 14 and a transponder 10 having a transponder antenna 18. Figures 5-7 of Schuermann then show a plurality of items having such transponders 10 affixed thereon. Schuermann explains that the "antennas 14 and 18 are tuned to the same frequency." *See, e.g.*, column 4, lines 50-51 of Schuermann. Thus, since all of the transponders 10 of Schuermann have antennas

18 that are tuned to the same frequency as the antenna 14 of his reader 12, the antenna 14 of his reader 12 cannot output different frequencies to read these transponders 10.

The requirement of Schuermann's antenna 14 to output an interrogation signal having a constant/same frequency is due to the nature of his interrogation technique. That is, Schuermann explains the following on column 6, lines 45-50:

“When two transponders are both in field (*i.e.*, within range to be read by reader 12), both will return a signal. If one of these signals is slightly stronger, the reader 12 will read the dominating signal and suppress the slightly weaker signal.”

Hence, Schuermann provides a technique to identify/differentiate between two transponders based on the strength of their response signals, which are sent in response to a common interrogation signal from the reader 12. It is inherent therefore that these two transponders need to be responsive to a common interrogation signal having a same/constant frequency, so that each transponder can recognize and respond to the interrogation signal. Schuermann differentiates between the responsive transponders by varying the read range of the interrogation signal, starting from interrogations at high-medium range and then followed by interrogations at low range. *See, e.g.*, column 6, lines 55-57 of Schuermann. Schuermann increases this read range not by increasing the frequency, but rather “by increasing the duration of the power pulse.” *See, e.g.*, column 7, lines 4-5 of Schuermann. The various transponders will have different response signal strengths at these different interrogation ranges, thereby providing differentiation between them.

Accordingly, Schuermann does not meet at least the limitations of claim 1 that require either or both “different frequencies” and “in a same frequency band.” Thus, claim 1 is allowable over Schuermann.

B. Discussion of the combinability of Kenny and Schuermann

It is respectfully submitted that it is improper to combine Kenny and Schuermann, as the final Office Action has done. First, the resulting combination would still not meet the limitations of claim 1 as explained above, with respect to “different frequencies in a same frequency band.”

Second, there is teaching against making the proposed combination of Kenny and Schuermann. For instance, Schuermann is directed towards a transponder identification technique that is based on being able to change a range of an interrogation signal by changing the duration or amplitude of the interrogation signal, while keeping the frequency of the interrogation signal constant, so as to be able to differentiate the strengths of response signals returned from the transponders/tags. As explained above, Schuermann suppresses the weaker response signals in favor of stronger response signals. In comparison, Kenny uses a completely different technique that requires different frequency bands (*i.e.*, LF and HF carrier signals), wherein tags in different numbered zones are identified using: a low frequency band to communicate with tags in zone 1; and a high frequency band to communicate with tags in zone 2 that are outside of zone 1 and outside of the range of the LF carrier signal. Schuermann and Kenny thus provide two different techniques, wherein one of them keeps a frequency constant and the other one of them changes the frequency. These are different and incompatible techniques that teach against each other.

Third, it is respectfully submitted that the proposed combination of Kenny and Schuermann would be inoperative. For instance, if Schuermann's teaching of a constant frequency were combined with Kenny, Kenny would not be able to provide the LF and HF signals for range modification that is the intent of his invention.

In view of the above, it is respectfully submitted that claim 1 is further allowable over the cited references.

C. Discussion of the other independent claims

The other independent claims 12, 18-19, and 21 are amended to recite, *inter alia*, “a same frequency band.” These features are not disclosed, taught, or suggested by any of the cited references, whether singly or in combination.

For example, Kenny’s LF and HF carrier signals belong to different frequency bands. Further, Schuermann provides a single/constant frequency. Also, Kenny and Schuermann cannot be properly combined because the resulting combination would still not meet the limitations in claims 12, 18-19, and 21, and/or the resulting combination would be inoperative, and/or there is teaching in these references against making the combination. Thus, it is respectfully submitted that claims 12, 18-19, and 21 are allowable.

II. Conclusion

Overall, none of the references singly or in any motivated combination disclose, teach, or suggest what is recited in the independent claims. Thus, given the above amendments and accompanying remarks, the independent claims are now in condition for allowance. The dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 622-4900.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,  
SEED Intellectual Property Law Group PLLC

/Dennis M. de Guzman/

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Dennis M. de Guzman  
Registration No. 41,702

DMD:sc

701 Fifth Avenue, Suite 5400  
Seattle, Washington 98104-7092  
Phone: (206) 622-4900  
Fax: (206) 682-6031

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